Claims

1. Method used to establish and/or maintain defined conditions of temperature and humidity in a building,

wherein it comprises the following steps :

- the filling with water of a supply reservoir (1) connected to an evaporator / exchanger (2);
- the passage of the water contained in the supply reservoir (1) through the tubes (3) or hollowed-out elements (3) of an evaporator / exchanger (2);
- the exudation of a part of the water circulating in the evaporator / exchanger (2) on the external walls of the said tubes (3) or said hollowed-out elements (3), the exudation being possible due to the porosity of the material which constitutes the tubes (3) or hollowed-out elements (3);
- the creation of a thin film of water on the external walls of the said tubes (3) or hollowed-out elements (3);
- the subsequent evaporation of this film of water provoking, by endothermic reaction, a cooling of the water circulating in the tubes (3) or hollowed-out elements (3);
- the generation, by a means of ventilation (7) of a flow of air which is to be cooled;
- the spraying of the refrigerated water in the said airflow, using a means of spraying (6), in order to create a humidified and cooled airflow.

2. Method according to claim 1,

wherein it comprises the following supplementary steps :

- the collection of the refrigerated water, after its passage in the tubes (3) or the hollowed-out elements (3), in the collection reservoir (4);
- the aspiration of the refrigerated water contained in the collection reservoir (4), using a means of aspiration (5), in order to direct it

towards the said means of spraying (6).

3. Method according to claim 1,

wherein it comprises the following supplementary steps :

- the collection of the refrigerated water, after its passage in the tubes (3) or the hollowed-out elements (3), in a collection reservoir (4);
- the transfer of the refrigerated water contained in the collection reservoir (4) to the supply reservoir (1), using a means of aspiration (35), the water moving through a tube (34) linking the supply reservoir (1) to the collection reservoir (4);
- the injection of the cooled water contained in the supply reservoir (1) into means of spraying.

4. Method according to claim 1 to 3,

wherein the refrigerated water is directly sprayed on the structure of the evaporator / exchanger (2) with the means of spraying (6), the flow of air generated, by a means of ventilation (7) being directed toward the means of spraying (6).

5. Method according to claim 4,

wherein the refrigerated water is sprayed intermittently with the means of spraying (6) on the structure of the evaporator / exchanger (2).

6. Device (8) for implementing the method according to one of claims 1 to 5,

wherein it comprises :

- a supply reservoir (1) connected to an evaporator / exchanger (2);
- an evaporator / exchanger (2) comprising tubes (3) or hollowed-out elements (3), made of a porous material, through which the water coming from the supply reservoir (1) circulates;
- a means of spraying (6);
- a means (5) used to transmit the refrigerated water contained in a

collection reservoir (4) or in a supply reservoir toward the means of spraying (6);

- a means of ventilation (7) generating a flow of air directed toward the means of spraying (6) in order to produce a humidified and cooled airflow;
- a collection reservoir (4) collecting the refrigerated water coming from the evaporator / exchanger (2).

7. Device (8) according to claim 6,

wherein :

- the means of spraying (6) is placed behind the said evaporator / exchanger (2) which sprays refrigerated water, coming from a collection reservoir (4), on the structure of the evaporator / exchanger (2);
- the means of ventilation (7) is placed behind the means of spraying (6) and generates a flow of air directed toward the means of spraying (6);
- the collection reservoir (4) is arranged beneath the evaporator / exchanger (2).

8. Device (8) according to one of claims 6 and 7,

wherein the supply reservoir (1) is insulated and comprises an orifice (9) by which the reservoir (1) is filled with water.

9. Device (8) according to claim 8,

wherein the orifice (9) is closed by a small flap (10) or by a screw stopper (10) and will be sufficiently wide for the introduction of ice cubes in the supply reservoir (1).

10. Device (8) according to one of claims 6 to 9,

wherein the supply reservoir (1) has a greater capacity than that of the

collection reservoir (4).

11. Device (8) according to one of claims 6 to 10,
wherein the supply reservoir (1) is directly linked to the mains water supply by an appropriate pipe (11) which may be a rigid tube or a flexible tube reinforced with a metal braid, the supply reservoir comprising a float (16) which automatically controls the opening of an inlet valve as soon as the level of water reaches a minimum and the closure of the inlet valve as soon as the water level reaches a maximum.

12. Device (8) according to one of claims 6 to 11,
wherein the tubes (3) or the hollowed-out elements (3) of the evaporator / exchanger (2) are made of a porous material.

13. Device (8) according to claim 12,
wherein the said porous material is an ordinary ceramic with open porosity such as terracotta or earthenware.

14. Device (8) according to one of claims 6 to 13,
wherein the tubes (3) or the hollowed-out elements (3) are made of a heat-conducting material and are coated with a material which absorbs the water projected onto the said tubes (3) or the hollowed-out elements (3).

15. Device (8) according to one of claims 6 to 14,
wherein the interior diameter of the tubes (3) or hollowed-out elements (3) is reduced and their wall thickness is of medium dimension.

16. Device (8) according to one of claims 6 to 15,
wherein the tubes (3) or the hollowed-out elements (3) comprise several channels.

17. Device (8) according to one of claims 6 to 15,
wherein some tubes (3) or hollowed-out elements (3) are arranged in front of and also behind the means of ventilation (7).

18. Device (8) according to one of claims 6 to 17,
wherein the tubes (3) or the hollowed-out elements (3) take the form of a coil with fans.

19. Device (8) according to one of claims 6 to 18,
wherein the evaporator / exchanger (2) is respectively linked to the supply reservoir (1) and the collection reservoir (4) by an distribution chamber (12) and by a collection chamber (12).

20. Device (8) according to claim 19,
wherein the distribution chamber (12) and the collection chamber (12) are in plastic, rubber or ceramic.

21. Device (8) according to one of claims 19 and 20,
wherein the distribution chamber (12) and the collection chamber (12) comprise supply tubes which cap respectively the upper and lower parts of each tube (3) or hollowed-out element (3), this distribution chamber (12) and this collection chamber (12) being respectively linked to the supply reservoir (1) and to the collection reservoir (4) by a tube (13).

22. Device (8) according to one of claims 6 to 21,
wherein the means of aspiration (5) is a variable-speed electric pump including a selector of pre-defined speeds or a continuous speed variator, the speed being determined either manually or automatically.

23. Device (8) according to one of claims 6 to 22,
wherein the means of ventilation (7) run at a variable speed and so comprise a

selector of pre-defined speeds or a continuous speed variator, the speed being determined either manually or automatically.

24. Device (8) according to claim 23,
wherein the means of ventilation (7) is a vertical blade fan or a turbine with horizontal vanes.

25. Device (8) according to one of claims 6 to 24,
wherein a humidity probe as well as a thermostatic probe respectively control the means of aspiration (5) and the means of ventilation (7).

26. Device (8) according to claim 25,
wherein the humidity probe as well as the thermostatic probe are contained together in an external unit, placed in the building to be cooled, this unit being linked to the device (8) by means of a wireless transmission.

27. Device (8) according to claim 26,
wherein the said unit comprises controls as well as indicators.

28. Device (8) according to one of claims 6 to 27,
wherein the median zone of the device (8) in which are arranged the means of spraying (6), the evaporator (2) and the means of ventilation (7) contains a housing having approximately the shape of a truncated pyramid, axis oriented horizontally, with the large base and the small base turned respectively toward the forward and rear face of the device (8).

29. Device (8) according to one of claims 6 to 28,
wherein it comprises an exit grill (18) comprised in the forward face of the said device (8) through which the humidified and cooled flow of air generated by the means of ventilation (7) is propelled out of the device according to the invention (8).

30. Device (8) according to one of claims 6 to 29,
wherein it comprises an air intake grill (15) comprised in the rear face of the device (8).

31. Device (8) according to claim 30,
wherein the air intake grill (15) comprises a filter to prevent the aspiration of dust which may prejudice the correct working of the apparatus.

32. Device (8) according to claim 31,
wherein the air intake grill (15) comprises flaps or shutters which may be closed partially or completely.

33. Device (8) according to one of claims 6 to 32,
wherein the collection reservoir (4) is insulated and comprises a draining plug in the lower face of the device according to the invention (8).

34. Device (8) according to one of claims 6 to 33,
wherein a ballast is fixed on the lower face of the device (8) to ensure the seating of the device (8).

35. Device (8) according to one of claims 6 to 34,
wherein a transparent window is comprised in the front face of the device according to the invention (8) in order to check the level of water in the supply reservoir (1).

36. Device (8) according to one of claims 6 to 35,
wherein the supply reservoir (1) comprises a float (16) protected from the ice cubes by a grill or by a perforated sheet envelope, this float (16) controlling an alarm which is sonic and / or visual.

37. Device (8) according to one of claims 6 to 36,
wherein the controls as well as the indicators are placed together on a panel (17) on the front or upper face of the device (8).

38. Device (8) according to one of claims 6 to 37,
wherein it is mounted on castors (19).

39. Device (8) according to one of claims 6 to 38,
wherein it is modular allowing them to superpose and juxtapose such modular devices (8) so as to build a fixed assembly, according to the volume of the building in question.

40. Device (8) according to claim 39,
wherein the tubes (3) or hollowed-out elements (3) of a modular device (8) are mounted in parallel on a chassis (20) of four plates,. each extremity of the tubes (3) or hollowed-out elements (3) is capped with a protruding semi-rigid connecting tube (60) which may be in plastic or rubber, and modelled so that it can be fitted to one of the tubes (21) which are part of connecting plates (22), these plates being placed respectively above and below the upper and lower plate of the frame (20), the hollowed-out elements (3) are 10 centimetres or more in width, they are capped with a ceramic supply or reception funnel.

41. Device (8) according to claim 40,
wherein the plates constituting the chassis (20) are made of stainless steel or built from galvanised pressed steel.

42. Device (8) according to one of claims 40 and 41,
wherein the retention of the said connecting tube in the said tubes (21) of the connecting plates (22) is effected with clips in metal or plastic (23).

43. Device (8) according to one of claims 40 to 42,

wherein the tubes (21) of the connecting plates (22) arranged on the upper plates of the chassises (20) constitute a female cavity whereas the tubes (21) of the connecting plates (22) arranged on the lower plates of the chassises (20) constitute a male cavity.

44. Device (8) according to one of claims 40 to 43,
wherein toric joints (29) are placed on the said tubes (21) of the connecting plates in order to optimise the watertightness of the assembly.

45. Device (8) according to one of claims 40 to 44,
wherein the connecting plates (22) placed at the top and the bottom of the assembly, constituted by juxtaposing devices (8), are linked to auxiliary tanks (25), the upper auxiliary tank (25) and the lower auxiliary tank (25) comprising respectively male tubes and female tubes (26) which can work together with the tubes (21) of the connecting plates (22) so that the said connecting plates (22) are linked to the auxiliary tanks (25), the upper and lower auxiliary tanks (25) being respectively linked to a supply reservoir (1) and to a collection reservoir (4) by a linking tube (27).

46. Device (8) according to one of claims 40 to 45,
wherein the lateral plates/flanges/guides of the chassis (20) comprise means of connection such as male or female cavities.

47. Device (8) according to one of claims 40 to 46,
wherein the assembly constituted by the juxtaposition of devices according to the invention (8) comprises a supply reservoir (1) which may be linked to the mains water supply by an appropriate pipe (11) which may be a rigid tube or a flexible tube reinforced by a metal braid.

48. Device (8) according to one of claims 40 to 47,
wherein the supply reservoir (1) comprises a float valve, controlling the filling

of the supply reservoir (1) and adjusted to a height so that an intermediate level may be ensured in order that a sufficient volume is reserved for the refrigerated water provided by the collection reservoir (4) by a means of aspiration (35), the upper part of the supply reservoir (1) having an air-hole.

49. Device (8) according to claim 48,
wherein the supply reservoir (1) is linked to a collection reservoir (4) by a tube (34) including a means of aspiration (35) so that the refrigerated water contained in the collection reservoir (4) may pass to the supply reservoir (1).

50. Device (8) according to claim 49,
wherein the tube (34) comprises a branch providing with refrigerated water contained in the collection reservoir (4) cold air diffusion elements which are distributed around the building to be cooled, these elements may be car radiators.

51. Device (8) according to one of claims 49 to 50,
wherein the collection reservoir (4) comprises a solenoid valve (30) which, when it is open, allows the water contained in this reservoir (4) to pass to the said tube (34), this solenoid valve (30) being controlled by a thermostat (31) linked to two probes (32, 33), one (32) in the supply reservoir (1) and the other (33) in the collection reservoir (4), with this set-up, when the temperature difference, registered by the thermostat (31), reaches a value which has been pre-set by the user, the solenoid valve (30) opens and the means of aspiration (35) is started up so that the supply reservoir (1) may be provided with refrigerated water.

52. Device (8) according to claim 51,
wherein the supply reservoir (1) comprises a pressure switch (36) used to turn off the means of aspiration (35) as well as to close the solenoid valve (30) when the volume of refrigerated water transferred into the supply reservoir (1)

has completely filled the said reservoir (1).

53. Device (8) according to one of claims 39 to 52,
wherein it comprises a means of ventilation of the said type placed either in front of the tubes (3) or the hollowed-out elements (3), or behind the said tubes (3) or hollowed-out elements (3).

54. Device (8) according to claim 53,
wherein the means of ventilation consist of a fan or a vertical-blade turbine.

55. Device (8) according to one of claims 53 and 54,
wherein the means of ventilation are at a variable speed and comprise a selector of pre-defined speeds or a continuous speed variator, the speed being determined either manually or automatically.

56. Device (8) according to one of claims 53 to 55,
wherein the thermostatic probes distributed in the building to be cooled may be used to drive the variable speed of these means of ventilation.

57. Device (8) according to one of claims 53 to 56,
wherein one or more modular devices (8) may be placed simultaneously in front of the said means of ventilation and behind the said means of ventilation.

58. Device (8) according to one of claims 53 to 57,
wherein it comprises a means of spraying placed in front of the means of ventilation, this means of spraying being supplied with refrigerated water by the supply reservoir (1) which comprises a solenoid valve controlled by a pressure switch (38), so, when the supply reservoir (1) is full the opening of this solenoid valve is actuated by the pressure switch (38), whereas when the level of water contained in the supply reservoir (1) returns to the said intermediate level, the solenoid valve is closed.

59. Device (8) according to claim 58,
wherein the means of spraying consist of a crown of atomising nozzles.

60. Device (8) according to one of claims 58 and 59,
wherein one or more humidity probe are placed in the building to be cooled and are used to control the atomising sequences.

61. Device (8) according to one of claims 39 to 60,
wherein it is remotely controlled with a control panel comprising at least a humidity probe and/or at least a thermostatic probe and/or controls and/or indicators.

Modified Claims
Received by OMPI on Aug. 04, 2005

Original claims 1-61 replaced by amended claims 1-61

1. Method used to establish and/or maintain defined conditions of temperature and humidity in a building,

wherein it comprises the following steps :

- the filling with water of a supply reservoir (1) connected to at least an evaporator / exchanger (2);
- the passage of the water contained in the supply reservoir (1) through tubular elements (3) or hollowed-out elements (3) of at least an evaporator / exchanger (2);
- the generation, by a means of ventilation (7) of a flow of air which is to be cooled toward at least an evaporator / exchanger (2);
- the spraying of the water in the said airflow toward at least an evaporator / exchanger (2) using a means of spraying or humidification (6), in order to create a humidified and cooled airflow, a thin film of water is created on the external walls of the said tubular elements (3) or said hollowed-out elements (3) when the said airflow and the tubular elements (3) or the hollowed-out elements (3) are in contact;
- the subsequent evaporation of this film of water provoking, by endothermic reaction, a cooling of the water circulating in at least an evaporator / exchanger (2).

2. Method according to claim 1,

wherein the tubular elements (3) or the hollowed-out elements (3) are porous and it comprises the following supplementary steps :

- the exudation of a part of the water circulating in at least an evaporator / exchanger (2) on the external walls of the said tubular elements or hollowed-out elements (3), the exudation being possible due to the porosity of the material which constitutes the tubular or

hollowed-out elements (3);

- the creation of a thin film of water on the external walls of the said tubular or hollowed-out elements (3) following this exudation of water circulating in at least an evaporator / exchanger (2).

3. Method according to one of claims 1 and 2,
wherein it comprises the following supplementary steps :

- the collection of the refrigerated water, after its passage in the tubular or the hollowed-out elements (3), in the collection reservoir (4);
- the aspiration of the refrigerated water contained in the collection reservoir (4), using a means of aspiration (5), in order to direct it toward the said means of spraying or humidification (6).

4. Method according to one of claims 1 and 2,
wherein it comprises the following supplementary steps :

- the collection of the refrigerated water, after its passage in the tubular elements or the hollowed-out elements (3), in a collection reservoir (4);
- the transfer of the refrigerated water contained in the collection reservoir (4) to the supply reservoir (1), using a means of aspiration (35), the water moving through a tube (34) linking the supply reservoir (1) to the collection reservoir (4);
- the injection of the cooled water contained in the supply reservoir (1) into means of spraying or humidification.

5. Method according to claim 3,
wherein the refrigerated water is sprayed intermittently with the means of spraying or humidification (6) on the structure of at least an evaporator / exchanger (2).

6. Device (8) for implementing the method according to one of claims 1 to 5,

wherein it comprises :

- a supply reservoir (1) connected to at least an evaporator / exchanger (2);
- at least an evaporator / exchanger (2) comprising tubular elements or hollowed-out elements (3) through which the water coming from the supply reservoir (1) circulates;
- means of spraying or humidification (6);
- a means of ventilation (7) generating a flow of air directed toward the means of spraying or humidification (6) in order to produce a humidified and cooled airflow.

7. Device (8) according to claim 6,

wherein :

- a collection reservoir (4) collecting the refrigerated water coming from at least an evaporator / exchanger (2);
- a means (5) used to transmit the refrigerated water contained in a collection reservoir (4) or in a supply reservoir (1) toward the means of spraying or humidification (6).

8. Device (8) according to one of claims 6 and 7,

wherein :

- the means of spraying or humidification (6) is placed behind the said at least an evaporator / exchanger (2) which sprays refrigerated water, coming from a collection reservoir (4), on the structure of the evaporator / exchanger (2);
- the means of ventilation (7) is placed behind the means of spraying or humidification (6) and generates a flow of air directed toward the means of spraying or humidification (6);
- the collection reservoir (4) is arranged beneath the evaporator /

exchanger (2).

9. Device (8) according to one of claims 6 to 8,

wherein the supply reservoir (1) is insulated and comprises an orifice (9) by which the reservoir (1) is filled with water, this orifice (9) may be closed by a small flap (10) or by a screw stopper (10) and will be sufficiently wide for the introduction of ice cubes in the supply reservoir (1).

10. Device (8) according to one of claims 6 to 9,

wherein the supply reservoir (1) has a greater capacity than that of the collection reservoir (4).

11. Device (8) according to one of claims 6 to 10,

wherein the supply reservoir (1) is directly linked to the mains water supply by an appropriate pipe (11) which may be a rigid tube or a flexible tube reinforced with a metal braid, the supply reservoir comprising a float (16) which automatically controls the opening of an inlet valve as soon as the level of water reaches a minimum and the closure of the inlet valve as soon as the water level reaches a maximum.

12. Device (8) according to one of claims 6 to 11,

wherein the tubular or the hollowed-out elements (3) of the evaporator / exchanger (2) are made of a porous material.

13. Device (8) according to claim 12,

wherein the said porous material is an ordinary ceramic with open porosity such as terracotta or earthenware.

14. Device (8) according to one of claims 6 to 13,

wherein the tubular or hollowed-out elements (3) are made of a heat-conducting material and are coated with a material which absorbs the water

projected onto the said tubular or hollowed-out elements (3).

15. Device (8) according to one of claims 6 to 14,
wherein the interior diameter of the tubular or hollowed-out elements (3) is reduced and their wall thickness is of medium dimension.

16. Device (8) according to one of claims 6 to 15,
wherein the tubular or hollowed-out elements (3) comprise several channels.

17. Device (8) according to one of claims 6 to 15,
wherein some tubular or hollowed-out elements (3) are arranged in front of and also behind the means of ventilation (7).

18. Device (8) according to one of claims 6 to 17,
wherein the tubular or hollowed-out elements (3) take the form of a coil with fans.

19. Device (8) according to one of claims 6 to 18,
wherein the said at least evaporator / exchanger (2) is respectively linked to the supply reservoir (1) and the collection reservoir (4) by an distribution chamber (12) and by a collection chamber (12).

20. Device (8) according to claim 19,
wherein the distribution chamber (12) and the collection chamber (12) are in plastic, rubber or ceramic.

21. Device (8) according to claims 19 and 20,
wherein the distribution chamber (12) and the collection chamber (12) comprise supply tubes which cap respectively the upper and lower parts of each tubular or hollowed-out element (3), this distribution chamber (12) and this collection chamber (12) being respectively linked to the supply reservoir

(1) and to the collection reservoir (4) by a tube (13).

22. Device (8) according to one of claims 6 to 21,
wherein the means of aspiration (5) is a variable-speed electric pump including a selector of pre-defined speeds or a continuous speed variator, the speed being determined either manually or automatically.

23. Device (8) according to one of claims 6 to 22,
wherein the means of ventilation (7) run at a variable speed and so comprise a selector of pre-defined speeds or a continuous speed variator, the speed being determined either manually or automatically.

24. Device (8) according to claim 23,
wherein the means of ventilation (7) is a vertical blade fan or a turbine with horizontal vanes.

25. Device (8) according to one of claims 6 to 24,
wherein a humidity probe as well as a thermostatic probe respectively control the means of aspiration (5) and the means of ventilation (7).

26. Device (8) according to claim 25,
wherein the humidity probe as well as the thermostatic probe are contained together in an external unit, placed in the building to be cooled; this unit may be linked to the device (8) by means of a wireless transmission.

27. Device (8) according to claim 26,
wherein the said unit comprises controls as well as indicators.

28. Device (8) according to one of claims 6 to 27,
wherein the median zone of the device (8) in which are arranged the means of spraying or humidification (6), the evaporator (2) and the means of ventilation

(7) contains a housing having approximately the shape of a truncated pyramid, axis oriented horizontally, with the large base and the small base turned respectively toward the forward and rear face of the device (8).

29. Device (8) according to one of claims 6 to 28,
wherein it comprises an exit grill (18) comprised in the forward face of the said device (8) through which the humidified and cooled flow of air generated by the means of ventilation (7) is propelled out of the device according to the invention (8).

30. Device (8) according to one of claims 6 to 29,
wherein it comprises an air intake grill (15) comprised in the rear face of the device (8).

31. Device (8) according to claim 30,
wherein the air intake grill (15) comprises a filter to prevent the aspiration of dust which may prejudice the correct working of the apparatus.

32. Device (8) according to claim 31,
wherein the air intake grill (15) comprises flaps or shutters which may be closed partially or completely.

33. Device (8) according to one of claims 6 to 32,
wherein the collection reservoir (4) is insulated and comprises a draining plug in the lower face of the device according to the invention (8).

34. Device (8) according to one of claims 6 to 33,
wherein a ballast is fixed on the lower face of the device (8) to ensure the seating of the device (8).

35. Device (8) according to one of claims 6 to 34,

wherein a transparent window is comprised in the front face of the device according to the invention (8) in order to check the level of water in the supply reservoir (1).

36. Device (8) according to one of claims 6 to 35,
wherein the supply reservoir (1) comprises a float (16) protected from the ice cubes by a grill or by a perforated sheet envelope, this float (16) controlling an alarm which is sonic and / or visual.

37. Device (8) according to one of claims 6 to 36,
wherein the controls as well as the indicators are placed together on a panel (17) on the front or upper face of the device (8).

38. Device (8) according to one of claims 6 to 37,
wherein it is mounted on castors (19).

39. Device (8) according to one of claims 6 to 38,
wherein it is modular allowing them to superpose and juxtapose such modular devices (8) so as to build a fixed assembly, according to the volume of the building in question.

40. Device (8) according to claim 39,
wherein the tubular elements (3) or the hollowed-out elements (3) of a modular device (8) are mounted in parallel on a chassis (20) of four plates,. each extremity of the tubular or hollowed-out elements (3) is capped with a protruding semi-rigid connecting tube (60) which may be in plastic or rubber, and modelled so that it can be fitted to one of the tubes (21) which are part of connecting plates (22), these plates being placed respectively above and below the upper and lower plate of the frame (20), the tubular or hollowed-out elements (3) are capped with a ceramic supply or reception funnel.

41. Device (8) according to claim 40,
wherein the plates constituting the chassis (20) are made of stainless steel or built from galvanised pressed steel.

42. Device (8) according to one of claims 40 and 41,
wherein the retention of the said connecting tube in the said tubes (21) of the connecting plates (22) is effected with clips in metal or plastic (23).

43. Device (8) according to one of claims 40 to 42,
wherein the tubes (21) of the connecting plates (22) arranged on the upper plates of the chassises (20) constitute a female cavity whereas the tubes (21) of the connecting plates (22) arranged on the lower plates of the chassises (20) constitute a male cavity.

44. Device (8) according to one of claims 40 to 43,
wherein toric joints (29) are placed on the said tubes (21) of the connecting plates in order to optimise the watertightness of the assembly.

45. Device (8) according to one of claims 40 to 44,
wherein the connecting plates (22) placed at the top and the bottom of the assembly, constituted by juxtaposing devices (8), are linked to auxiliary tanks (25), the upper auxiliary tank (25) and the lower auxiliary tank (25) comprising respectively male tubes and female tubes (26) which can work together with the tubes (21) of the connecting plates (22) so that the said connecting plates (22) are linked to the auxiliary tanks (25), the upper and lower auxiliary tanks (25) being respectively linked to a supply reservoir (1) and to a collection reservoir (4) by a linking tube (27).

46. Device (8) according to one of claims 40 to 45,
wherein the lateral plates/flanges/guides of the chassis (20) comprise means of connection such as male or female cavities.

47. Device (8) according to one of claims 40 to 46,
wherein the assembly constituted by the juxtaposition of devices according to the invention (8) comprises a supply reservoir (1) which may be linked to the mains water supply by an appropriate pipe (11) which may be a rigid tube or a flexible tube reinforced by a metal braid.

48. Device (8) according to one of claims 40 to 47,
wherein the supply reservoir (1) comprises a float valve, controlling the filling of the supply reservoir (1) and adjusted to a height so that an intermediate level may be ensured in order that a sufficient volume is reserved for the refrigerated water provided by a collection reservoir (4) by a means of aspiration (35), the upper part of the supply reservoir (1) having an air-hole.

49. Device (8) according to claim 48,
wherein the supply reservoir (1) is linked to a collection reservoir (4) by a tube (34) including a means of aspiration (35) so that the refrigerated water contained in the collection reservoir (4) may pass to the supply reservoir (1).

50. Device (8) according to claim 49,
wherein the tube (34) comprises a branch providing with refrigerated water contained in the collection reservoir (4) cold air diffusion elements which are distributed around the building to be cooled, these elements may be car radiators.

51. Device (8) according to claims 49 to 50,
wherein the collection reservoir (4) comprises a solenoid valve (30) which, when it is open, allows the water contained in this reservoir (4) to pass to the said tube (34), this solenoid valve (30) being controlled by a thermostat (31) linked to two probes (32, 33), one (32) in the supply reservoir (1) and the other (33) in the collection reservoir (4), with this set-up, when the temperature

difference, registered by the thermostat (31), reaches a value which has been pre-set by the user, the solenoid valve (30) opens and the means of aspiration (35) is started up so that the supply reservoir (1) may be provided with refrigerated water.

52. Device (8) according to claim 51,
wherein the supply reservoir (1) comprises a pressure switch (36) used to turn off the means of aspiration (35) as well as to close the solenoid valve (30) when the volume of refrigerated water transferred into the supply reservoir (1) has completely filled the said reservoir (1).

53. Device (8) according to one of claims 39 to 52,
wherein it comprises a means of ventilation of the said type placed either in front of the tubular elements (3) or the hollowed-out elements (3), or behind the said tubular elements (3) or hollowed-out elements (3).

54. Device (8) according to claim 53,
wherein the means of ventilation consist of a fan or a vertical-blade turbine.

55. Device (8) according to claims 53 and 54,
wherein the means of ventilation are at a variable speed and comprise a selector of pre-defined speeds or a continuous speed variator, the speed being determined either manually or automatically.

56. Device (8) according to one of claims 53 to 55,
wherein the thermostatic probes distributed in the building to be cooled may be used to drive the variable speed of these means of ventilation.

57. Device (8) according to one of claims 53 to 56,
wherein one or more modular devices (8) may be placed simultaneously in front of the said means of ventilation and behind the said means of ventilation.

58. Device (8) according to one of claims 53 to 57,

wherein it comprises a means of spraying placed in front of the means of ventilation, this means of spraying being supplied with refrigerated water by the supply reservoir (1) which comprises a solenoid valve controlled by a pressure switch (38), so, when the supply reservoir (1) is full the opening of this solenoid valve is actuated by the pressure switch (38), whereas when the level of water contained in the supply reservoir (1) returns to the said intermediate level, the solenoid valve is closed.

59. Device (8) according to claim 58,

wherein the means of spraying consist of a crown of atomising nozzles.

60. Device (8) according to one of claims 58 and 59,

wherein one or more humidity probes are placed in the building to be cooled and are used to control the atomising sequences.

61. Device (8) according to one of claims 39 to 60,

wherein it is remotely controlled with a control panel comprising at least a humidity probe and/or at least a thermostatic probe and/or controls and/or indicators.